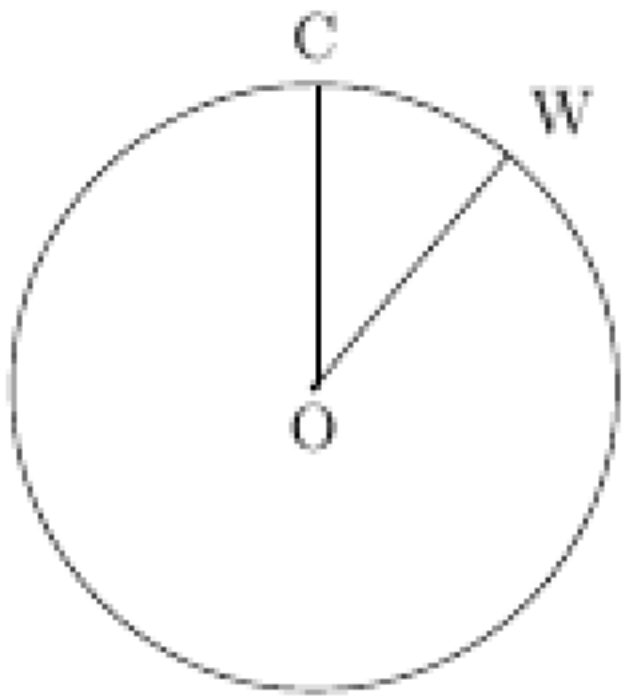
Topic: Arc length

Question: Find arc length.

The length of $OC = 18$ and $m\angle COW = 40°$. What is the length of arc CW?



Answer choices:

A 4π

B 8π

C 10π

D 12π

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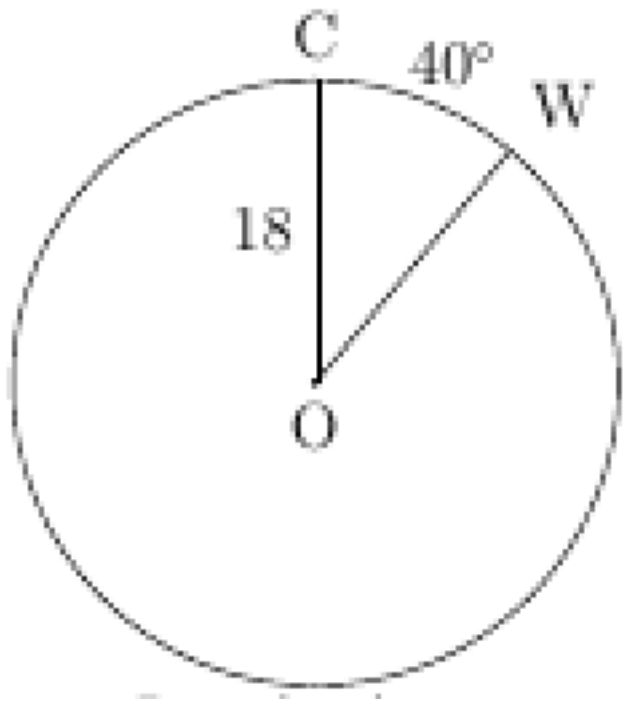
Solution: A

The arc length formula is

$$L = \frac{m}{360} \cdot 2\pi r$$

We already know that the associated interior angle measure is $m\angle COW = 40°$, and that the radius of the circle is given by $OC = 18$.



Plugging these things into the arc length formula gives

$$L = \frac{40}{360} \cdot 2\pi \cdot 18$$

$$L = 4\pi$$

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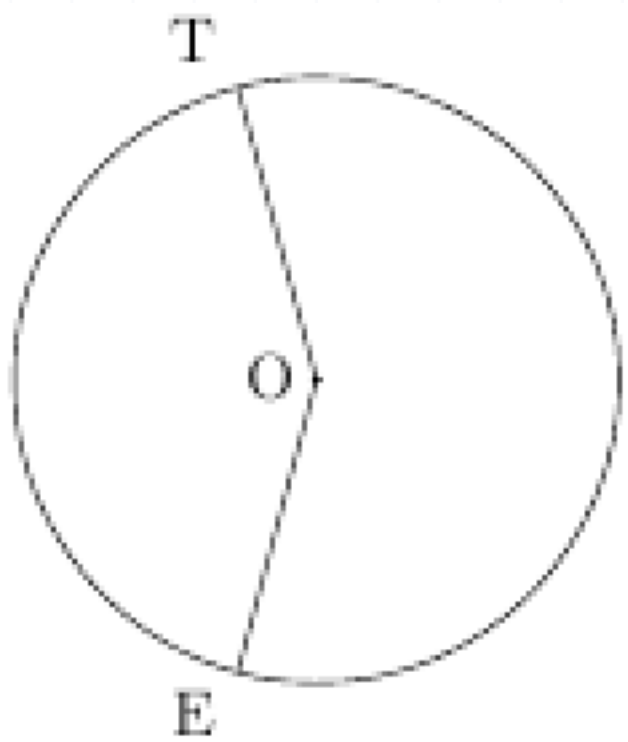
Topic: Arc length

Question: Find arc length.

The length of $OT = 6$ and $m\angle TOE = 150°$. What is the length of arc TE?



Answer choices:

A 4π

B 5π

C 6π

D 12π

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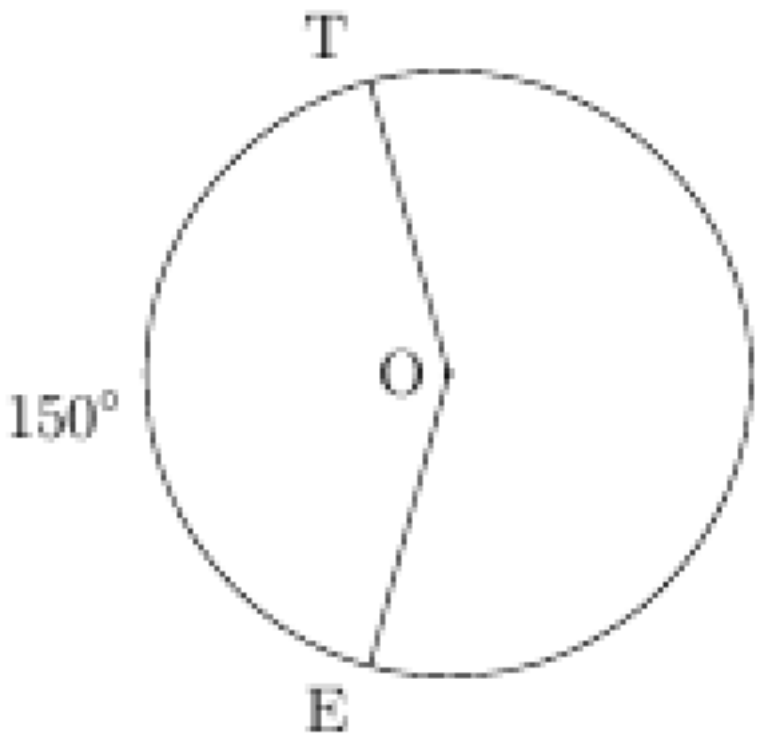
Solution: B

The arc length formula is

$$L = \frac{m}{360} \cdot 2\pi r$$

We already know that the associated exterior angle measure is $m\angle TOE = 150°$, and that the radius of the circle is given by $OT = 6$.



Plugging these things into the arc length formula gives

$$L = \frac{150}{360} \cdot 2\pi \cdot 6$$

$$L = 5\pi$$

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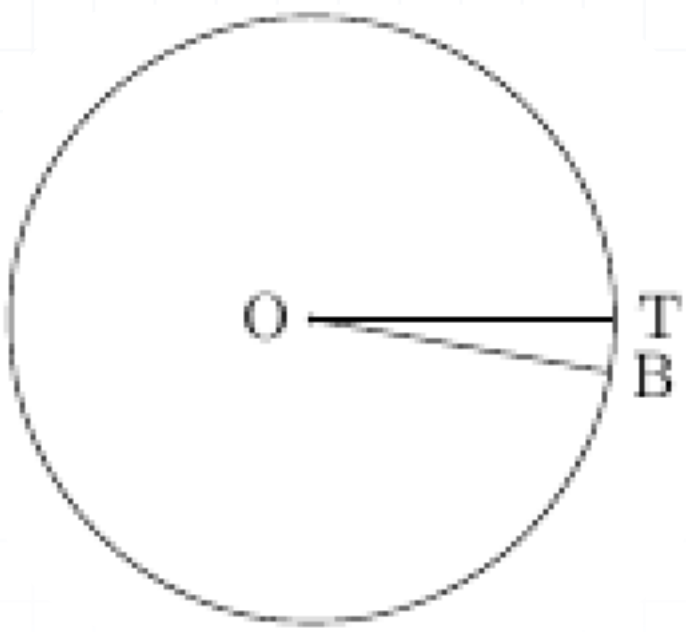
Topic: Arc length

Question: Find angle measure.

The length of $OT = 15$ and arc $BT = 5\pi/6$. What is the measure of $\angle BOT$?



Answer choices:

A $5°$

B $8°$

C $10°$

D $12°$

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Solution: C

The arc length formula is

$$L = \frac{m}{360} \cdot 2\pi r$$

We already know that arc length is $5\pi/6$ and that the radius of the circle is 15. Substituting these values into the formula gives

$$\frac{5\pi}{6} = \frac{m}{360} \cdot 2\pi \cdot 15$$

$$\frac{5\pi}{6} = \frac{\pi m}{12}$$

$$10\pi = \pi m$$

$$m = 10$$

So the interior angle measure is $m\angle BOT = 10°$.

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